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## A New Species of Deep-dwelling Razorfish from Japan

By

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*With Text-figure 1 and Table 1*

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This deep-dwelling razorfish was reported and illustrated for the first time by Masuda, Araga and Yoshino (1975) based on three specimens obtained from off Okinawajima, the Ryukyu Islands, but without identification. Yamakawa briefly described another specimen of this species in the book edited by Masuda et al. (1984) as *Xyrichtys* sp. Although this razorfish was thought to be endemic to the Ryukyu Islands, additional single specimen has been recently obtained from Ramapo Bank near the Ogasawara Islands. Closely examined these specimens, this fish is not identifiable with any known species. Here in this paper, the fish is described as new.

Type specimens of the new species have been deposited at the following institutions: Marine Sciences, University of the Ryukyus, Okinawa (URM); National Science Museum (Nat. Hist.), Tokyo (NSMT); and Seto Marine Biological Laboratory of Kyoto University, Shirahama, Wakayama Pref. (SMBL).

In the description of the new species, data in parentheses refer to paratypes. Measurement data of each specimen are given in the table 1 in which proportional measurements expressed as a percentage of standard length (SL) in parentheses. Terminology and counts follow Randall (1980), Russell and Randall (1981), and Russell (1985). Caudal fin counts are given as the number of upper unbranched rays in lowercase roman numerals+branched rays in arabic numerals+lower unbranched rays in lowercase roman numerals (eg. ii+10+ii). Pectoral fin counts are also given in the same manner.

We would like to express our thanks to Mr. Takeshi Yamakawa of the Kochi Senior High School for his courtesy to give us the chance describing this new species. Our thanks due to Mr. Eiichi Fujii of the Tokai Regional Fisheries Research Laboratory who kindly offered us an important specimen and its collecting data.

***Xyrichtys geisha* sp. nov.**

(Japanese name: Kurobuchi-tensu)

(Fig. 1)

*Hemipteronotus* sp. 1 Masuda, Araga & Yoshino, 1975, p. 306, Pl. 111-I.

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*Xyrichtys* sp. Yamakawa in Masuda et al. Ed., 1984, p. 205, Pl. 208-A.

Holotype: URM-P 7165, 347.0 mm SL, Itoman Fish Market (collected by a fisherman with hand line from the outer margin of Okinawa Trough, about 100 m deep), T. Yoshino, 7 May 1983.

Paratypes: NSMT-P 44107, 316.5 mm SL, Ramapo Bank off Ogasawara (Bonin) Islands, 95 m deep, vertical long line, E. Fujii, Sept. 1984; SMBL-F 73428, 74329, 73430, 323.2, 318.1, 281.7 mm SL, Naha Wholesale Market (fishing field same as that of the holotype), T. Yoshino, 27 Dec. 1973.

**Diagnosis:** Dorsal rays IX, 12; anal rays III, 12; caudal rays ii+10 or 11+ii; pectoral rays ii+10 or 11+i; pelvic rays I,5; lateral line scales 19 or 20+5; gill rakers 6 or 7+16 to 18. Easily distinguished from other species of the genus by its peculiar coloration i.e. dorsal and ventral sides of body black, other parts of head and body olive yellow; dorsal, anal and pelvic fins entirely black; lower half of caudal fin also black; pectoral fin white except for black base.

**Description:** Dorsal rays IX,12; anal rays III,12; caudal rays ii+11 (10 in one paratype)+ii; pectoral rays ii+10 (11 in one paratype)+i; pelvic rays I,5; lateral line interrupted, the anterior upper portion with 20 (19) pored scales, lower posterior part with 5 pored scales; scales above lateral line to origin of dorsal fin 2+a half-sized scale; scales below lateral line to origin of anal fin 9+2 or 3 small scales; gill rakers 7+11:18 (6 or 7+10:16 or 17).

Body high, the depth 2.66 (2.47–2.60) in SL, and strongly compressed, the width 2.55 (2.48–2.80) in depth; head large, its length 3.10 (3.10–3.22) in SL; snout length 2.73 (2.72–3.51) in head length; eye diameter 6.48 (5.75–6.99) in head; interorbital space much convex, the width 4.08 (4.10–4.69) in head; caudal peduncle about 1.5 times as deep as long, the least depth 2.20 (2.08–2.21) in head.

Forehead roundly projected, anterior profile of head steep, the leading edge sharp; mouth terminal, the gape horizontal, posterior end of maxilla not reaching a vertical at frontal edge of eye; head naked except for a single row of small scales below lower edge of eye; gill membranes united each other, free from isthmus. Nostrils small, in front of lower fourth of eye, the anterior in a short fleshy tube, the posterior larger and triangular in shape. A pair of large, projecting, slightly recurved canine teeth at the tip of each jaw; lower pair inserted into a space between fairly separated upper canine teeth when the mouth closed; 8 to 10 conical teeth in a single row along the side of both jaws.

Lateral line interrupted, the end of anterior upper portion reaching a vertical at the base of 9th dorsal soft ray; posterior lower part running from just below the base of last dorsal soft ray to caudal fin base; few anterior scales on anterior upper lateral line with branched tubules, remaining lateral line scales with a single tubule.

Origin of dorsal fin just above the center of eye; 1st and 2nd dorsal spines slightly produced, somewhat remote but joined with the following spines by a low membrane; origin of anal fin below the base of 2nd or 3rd dorsal soft ray, 1st anal spine short and slender, 3rd anal spine about 1.5 times as long as the 1st; all dorsal and anal soft rays branched, the last to its base; caudal fin short, the length of unscaled portion contained about 2.5 to 2.8 times in head length; posterior margin of caudal fin slightly rounded; pectoral fin rather large, 1.37 (1.37–1.49) in head length, the 4th ray

Table 1. Proportional measurements of type specimens of *Xyrichtys geisha*.

	HOLOTYPE	PARATYPES			
	URM-P 7156	NSMT-P 44107	SMBL-F 73428	SMBL-F 73429	SMBL-F 73430
Standard length (mm)	347.0	316.5	323.2	318.1	281.7
Body depth	130.4(37.6)	122.7(38.8)	130.5(40.4)	122.2(38.4)	113.8(40.4)
Body width	51.2(14.8)	49.4(15.6)	46.6(14.4)	45.6(14.3)	41.1(14.6)
Head length	113.4(32.7)	98.5(31.1)	104.2(32.2)	98.9(31.1)	93.6(33.2)
Snout length	41.6(12.0)	36.2(11.4)	41.0(12.7)	28.2( 8.9)	32.3(11.5)
Eye diameter	17.5( 5.0)	15.4( 4.9)	15.9( 4.9)	17.2( 5.4)	13.4( 4.8)
Interorbital width	27.8( 8.0)	24.0( 7.6)	22.2( 6.9)	23.7( 7.5)	20.0( 7.1)
Length of upper jaw	34.3( 9.9)	30.6( 9.7)	30.4( 9.4)	27.4( 8.6)	23.8( 8.4)
Depth of caudal peduncle	51.5(14.8)	47.3(14.9)	47.7(14.8)	46.7(14.7)	42.3(15.0)
Length of 1st dorsal spine	52.3(15.1)	48.3(15.3)	46.4(14.4)	45.3(14.2)	broken
Length of 2nd dorsal spine	44.5(12.8)	41.4(13.1)	41.8(12.9)	42.4(13.3)	35.8(12.7)
Length of 9th dorsal spine	40.8(11.8)	40.1(12.7)	40.0(12.4)	40.4(12.7)	36.5(12.9)
Length of longest dorsal ray	44.9(12.9)	41.9(13.2)	42.4(13.1)	43.6(13.7)	40.2(14.3)
Length of dorsal fin base	264.9(76.3)	235.9(74.5)	237.6(73.5)	250.0(78.6)	210.9(74.9)
Length of 1st anal spine	15.5( 4.5)	15.4( 4.9)	15.7( 4.9)	16.8( 5.3)	17.2( 6.1)
Length of 3rd anal spine	25.8( 7.4)	26.2( 8.3)	27.1( 8.4)	28.0( 8.8)	29.8(10.6)
Length of longest anal ray	49.4(14.2)	40.0(12.6)	43.6(13.5)	44.0(13.8)	37.8(13.4)
Length of anal fin base	128.0(36.9)	127.2(40.2)	114.6(35.5)	112.5(35.4)	103.7(36.8)
Length of caudal fin	56.0(16.1)	48.9(15.5)	47.2(14.6)	49.3(15.5)	46.8(16.6)
Length of pectoral fin	82.7(23.8)	69.6(22.0)	74.8(23.1)	72.1(22.7)	62.7(22.3)
Length of pelvic spine	29.4( 8.5)	25.0( 7.9)	24.0( 7.4)	26.3( 8.3)	23.6( 8.4)
Length of pelvic fin	51.7(14.9)	37.1(11.7)	38.7(12.0)	43.7(13.7)	37.4(13.3)

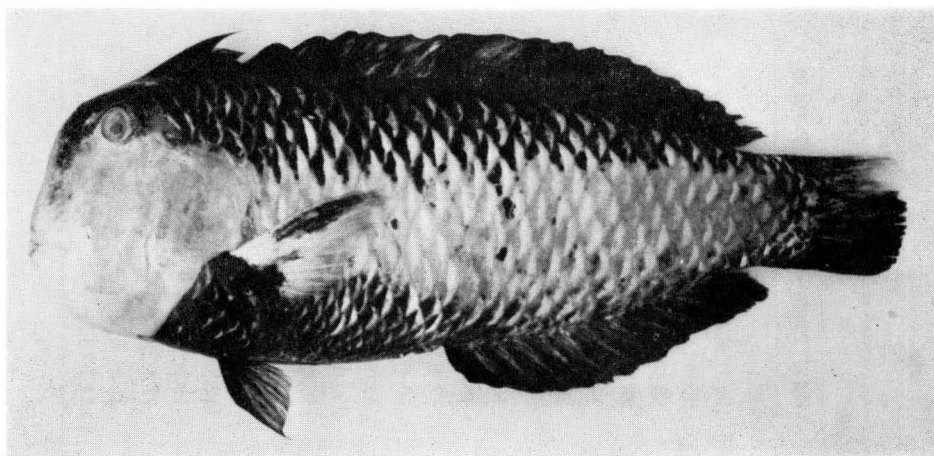


Fig. 1. *Xyrichtys geisha* sp. nov., holotype, 347 mm SL, URM-P 7165, Okinawajima.

longest; origin of pelvic fins below highest extent of pectoral base; the length 2.19 (2.26–2.69) in head, pelvic spine rather slender.

Color when fresh: Most of head and body light olive yellow, sometimes slightly pinkish with several black spots on median side of body; posterior margin of each sclae of these parts whitish; scales on back and belly jet black with pale posterior margin, then back and belly black as a whole; thorax and pectoral base entirely black; upper part of head blackish brown with a yellowish oblique band just behind eye; cheek with faint irregular blue lines; lips whitish; iris yellowish orange. Dorsal and anal fins black except for faint basal part of soft portions; upperhalf to two thirds of caudal fin blackish basally, yellowish white distally; lower one third to half of caudal fin black; pectoral fins slightly bluish white with jet black base (a black band along the upper margin in the holotype); pelvic fins black basally, somewhat faint distally.

Color in preservative: Most of head and body entirely pale yellowish; black portions of scales on back and belly, and black spots on median side of body when fresh change to dark brown; thorax darker than back and belly; dorsal, anal, lower part of caudal and pelvic fins all dark brown; pectoral fins pale yellowish with blackish base (faint dark brown band along the upper margin in the holotype).

E t y m o l o g y: Named *geisha* from the Japanese for “professional beauty and entertainer” in reference to the black and white coloration of this fish that is imaginable for an elderly geisha dressed up with traditional costume.

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